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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,127	01/30/2004	Ping Mei	200209576-1	8740
22879	7590	03/21/2011		
HEWLETT-PACKARD COMPANY Intellectual Property Administration 3404 E. Harmony Road Mail Stop 35 FORT COLLINS, CO 80528			EXAMINER HOANG, QUOC DINH	
			ART UNIT 2892	PAPER NUMBER
			NOTIFICATION DATE 03/21/2011	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/769,127	<b>Applicant(s)</b> MEI, PING	
	<b>Examiner</b> QUOC D. HOANG	<b>Art Unit</b> 2892	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-14,16-28 and 30 is/are pending in the application.
- 4a) Of the above claim(s) 11,12,21,24-28 and 30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-9 and 13 is/are rejected.
- 7) ☒ Claim(s) 3,10,14,16-20,22 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/2011</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 01/24/2011 has been entered.

### ***Allowable Subject Matter***

2. The indicated allowability of claim 2 and 15 are withdrawn in view of the newly discovered reference(s) to Brown et al (US Pat 7,482,207) and Wachenschwanz et al (US 7,147,790). Rejections based on the newly cited reference(s) follow.

### ***Claim Objections***

3. Claims 22 and 23 are objected to because of the following informalities: Claims 22-23 depend on canceled claim 15. Appropriate correction is required.

### **Response to Amendment**

4. Amendment filed on 01/24/2011 has been entered. Claims 2, 15, and 29 have been cancelled. Claims 1, 3-14, 16-28 and 30 are pending in the application.

**Claim Rejections - 35 USC § 102**

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 5-9, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Wachenschwanz et al (US 7,147,790).

Regarding claims 1 and 13, Wachenschwanz teaches a method for forming a semiconductor device comprising:

forming a 3-dimensional (3D) pattern in a substrate (610) by,

depositing a layer of material (615, Fig. 6B) onto the substrate;

imprinting a 3D pattern (embossable layer 622, Fig. 6C) into the layer of material; and

transferring the 3D pattern into the substrate (622, Fig. 6E); and

depositing at least one material (620, soft magnetic layer for storing data) over the substrate in accordance with desired characteristics of the semiconductor device (col. 1, lines 10-15, col. 9, lines 9-65, and Figs. 6(A)-(6I)).

Regarding claims 5-8, Wachenschwanz teaches wherein imprinting a 3D pattern into the layer of material further comprises utilizing a 3D stamping tool (stamper) to

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create the 3D pattern, wherein the layer of material comprises a polymer material and a photo-resist material (embossable layer, col. 9, lines 28-35)

Regarding claim 9, Wachenschwanz teaches wherein transferring the 3D pattern into the substrate includes:

removing a portion of the layer of material (622) thereby exposing a portion of the substrate (Fig. 6C);

etching the exposed portion of the substrate (Fig. 6D);

removing another portion of the layer of material thereby exposing a second portion of the substrate (Fig. 6D);

etching the second portion of the substrate (Fig. 6E); and

removing a remaining portion of the layer of material (Fig. 6E) (col. 9, lines 9-65, and Figs. 6(A)-(6I)).

7. Claims 1, 4-6, 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Brown et al (US Pat 7,482,207).

Regarding claims 1, 4-6, and 13, Brown teaches a method for forming a semiconductor device comprising:

forming a 3-dimensional (3D) pattern (tool (56) containing protruding features have a rectangular profile) in a substrate (54) by,

depositing a layer of material (55) onto the substrate;

imprinting a 3D pattern into the layer of material; and

transferring the 3D pattern into the substrate; and

depositing at least one material (63, transistor) over the substrate in accordance with desired characteristics of the semiconductor device (col. 8, line 16 through col.9, line 4, and Figs. 6(A)-(C)).

***Allowable Subject Matter***

8. Claims 3, 10, 14, 16-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: as to claims 3 and 14, the prior art of record taken along or in combination, fails to teach or reasonably suggests wherein the semiconductor device comprises a cross-point memory array.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc Hoang whose telephone number is (571) 272-1780. The examiner can normally be reached on Monday-Friday from 8.00 AM to 5.00 PM.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thao Le can be reached on (571) 272-1708. The fax phone numbers of the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Quoc D Hoang/

Primary Examiner, Art Unit 2892